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PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 05 OCT 2004
WIPO PCT

pplicant's or agent's file reference)200666SJ	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
ternational Application No. CT/SG2002/000063	International Filing Date *(day/month/year)* 19 April 2002	Priority Date *(day/month/year)* 19 April 2002

ıternational Patent Classification (IPC) or national classification and IPC

ıt. Cl.[7] G01N 1/00, B01D 11/00, C07D 311/30, C07D 311/40, C07D 455/03, C07H 15/25

pplicant

HEALTH SCIENCES AUTHORITY et al

. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

. This REPORT consists of a total of 4 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheet(s).

. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 18 November 2003	Date of completion of the report 1 August 2004
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer **DAVID GRIFFITHS** Telephone No. (02) 6283 2628

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/SG2002/000063

Basis of the report

With regard to the **elements** of the international application:*

☐ the international application as originally filed.

☒ the description, pages **1 - 24,** as originally filed,
pages , filed with the demand,
pages , received on with the letter of

☒ the claims, pages **25,** as originally filed,
pages **26,** as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages , received on with the letter of

☒ the drawings, pages **1 - 6,** as originally filed,
pages , filed with the demand,
pages , received on with the letter of

☐ the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of

2. With regard to the **language,** all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages

☐ the claims, Nos.

☐ the drawings, sheets/fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report*

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Statement

Novelty (N)	Claims	**3, 7-12, 14-20**	**YES**
	Claims	**1, 2, 4-6, 13**	**NO**
Inventive step (IS)	Claims	**3, 7-12, 14, 16, 18-20**	**YES**
	Claims	**1, 2, 4-6, 13, 15, 17**	**NO**
Industrial applicability (IA)	Claims	**1-20**	**YES**
	Claims		**NO**

Citations and explanations (Rule 70.7)

The invention relates to the extraction of analytes from a sample using pressurised-hot-water extraction at temperatures below 100° C at a pressure between about 10 and about 30 bar.

The following citations will be considered in this report:

D1. US 4,806,375

D2. GB 2,123,685

D3. US 5,974,899

D4. *Journal of Chromatography, A,* (2000), 868(1), pp. 73-83

D5. *Analytical Chemistry* (2000), 72(14), pp. 3070-3076

New citations:

D6. EP 934,719 B1 (CIMBALI S.p.A) 1 September 1999

D7. US 5,638,740 A (CAI) 17 June 1997

D1 discloses the preparation of beverages, such as coffee, by extraction from sealed cartridges at a pressure of between 8 and 16 kg/cm^2 (approx. 7.8 - 15.7 bar). Although the citation does not explicitly mention that the water is below 100°C this feature is implicit in the nature of the art — it is well understood by those working in the art that espresso coffee is made at temperatures between 90° and 95°C for optimum taste and to avoid "burning" the coffee (see the discussion for new citation, document D6). Given the open-ended meaning of the term *analyte* and the fact that the components of coffee can be analytes in their own right (*e.g.* when comparing different coffee beans or in a quality assurance step) the citation renders claims 1, 2, 4-6 and 13 not novel. It would be obvious to the person skilled in the art that the method could be used to extract similar extractables from other plant specimens. Detection and analysis of the extracted components would be required for many purposes and the methods for this are common general knowledge and so the citation renders claims 15 and 17 not inventive.

The applicant contends that the citation differs from the present invention in that the purpose of the claimed invention is to provide pressurised-hot-water extraction methods for extracting one or more compounds from a sample of interest by use of a system applying heated water under pressure in a controlled environment, such as specific temperature and regulated pressure, in order to ensure that the amount of target compounds or marker compounds extracted falls within the desired amount. These conditions also apply to the method disclosed in the citation: temperature and pressure are regulated to ensure a consistent extraction of the hot-water-extractable components of coffee. There is nothing in the wording of claim 1, for example, that would distinguish it from the citation — as noted above, even the word *analyte* does not appear to be useful in distinguishing the present claims from the citation. Note that ground coffee is a "botanical or herbal preparation" as defined in claim 13.

Continued on supplemental sheet...

ıpplemental Box
o be used when the space in any of the preceding boxes is not sufficient)

ɔntinuation of Box V

2 also discloses the preparation of beverages, in this case coffee or tea. The citation does not mention the pressure nployed, except that it is "above atmospheric"; therefore the citation cannot be said to disclose or suggest all the atures of the claims and so the present claims must be considered to be novel and inventive over the citation.

3 discloses the extraction of nutrients from soil using pressurised hot water using a temperature of 93° C and a essure of 2.5 bar. The citation does not teach or suggest using the presently defined pressure range and so the claims ıust be considered to be novel and inventive over the citation.

4 compares different methods of extracting irioid glycosides, including hot water extraction at various temperatures ıd pressures. The citation however does not teach or suggest the present combination of temperature and pressure ınges with the temperatures below 100° C being either at atmospheric pressure or a pressure above 67 atmospheres. he present claims must be acknowledged as being novel and inventive over the citation.

5 discloses pressurised-hot-water extraction but temperatures and pressures used are well in excess of those presently ıught — 118 bar and 300°C. The present claims are therefore novel and inventive over the citation.

6 discloses an apparatus and process for making espresso coffee using an optimum temperature of approximately 5°C and a pressure of about 9 bar. Although the pressure disclosed is slightly below the pressure currently claimed he person skilled in the art would know that this pressure is around the lower limit for producing the characteristic rema on the surface of the espresso coffee and that many commercial machines operate at higher pressures up to 15 or ven 19 bar. This document is cited to establish that it is known in the art to make espresso coffee at a temperature elow 100°C. Whilst this document could be combined with the teaching of document D1 as a "Y" level citation — a locument of particular relevance; the claimed invention cannot be considered to involve an inventive step when the locument is combined with one or more other such documents" — it is only one of a large number of such documents ınd so this introduced as evidence of the knowledge in the art. The Internet has several thousands of sites that discuss he optimum conditions for making espresso including many instruction manuals for espresso makers working in the resently claimed temperature and pressure ranges. These sites were not cited because of difficulty in establishing a late when the knowledge was first available however they give an indication of the extent of the knowledge and the ıigh probability of finding a useable citation if a proper search were to be conducted.

D7 discloses an apparatus for making espresso and cappuccino coffees working at 10 to 15 bars of pressure (column 1, lines 23 to 30) and a temperature of from about 85° to about 105° C (preferably 90° to 102° C). The citation therefore renders claims 1, 2, 4-6 and 13 not novel.

All claims meet the criterion of being industrially applicable.